Change to Conservation Measure for the Western yellow bat
Lower Colorado River Multi-Species Conservation Program
Program Decision Document 14-001

Steering Committee Motion

The Steering Committee approves Reclamation's recommended changes to conservation measure WYBA3 to include foraging in cottonwood-willow and mesquite habitats, specifically:

WYBA3 –Of the 7,260 acres of cottonwood-willow and honey mesquite to be created as covered species habitat, at least 765 acres will be designed and created to provide western yellow bat roosting or foraging habitat. Created roosting or foraging habitat will be designed and managed to support cottonwood-willow types I and II and honey mesquite type III. The LCR MSCP process for selecting sites to establish cottonwood-willow and honey mesquite as habitat for other covered species habitat will, based on the information collected under conservation measure WYBA1, give priority, when consistent with achieving LCR MSCP goals for other covered species, to selecting sites that are occupied by the western yellow bat in Reaches 3-5. As described in Section 5.4.3, created cottonwood-willow and honey mesquite land cover will be designed to establish stands that will support a substantially greater density and diversity of plant species that will provide roosting or foraging habitat and that are likely to support a greater abundance of insect prey species than is currently produces in the affected land cover types.

Current Conservation Measure

5.7.8.2 Conservation Measures (LCR MSCP 2004)

WYBA3 –Of the 7,260 acres of cottonwood-willow and honey mesquite to be created as covered species habitat, at least 765 acres will be designed and created to provide western yellow bat roosting habitat. Created roosting habitat will be designed and managed to support cottonwood-willow types I and II and honey mesquite type III. The LCR MSCP process for selecting sites to establish cottonwood-willow and honey mesquite as habitat for other covered species habitat will, based on the information collected under conservation measure WYBA1, give priority, when consistent with achieving LCR MSCP goals for other covered species, to selecting sites that are occupied by the western yellow bat in Reaches 3-5. As described in Section 5.4.3, created cottonwood-willow and honey mesquite land cover will be designed to establish stands that will support a substantially greater density and diversity of plant species that will provide roost trees and that are likely to support a greater abundance of insect prey species than is currently produces in the affected land cover types.

Justification

During the development of the LCR MSCP, the western yellow bat conservation measures were based on the current understanding of the western yellow bat's habitat use along the LCR. Conservation Measure WYBA1 was developed to determine the distribution of the western yellow bat in Reaches 3-5. Recent research and monitoring data suggest that the western yellow

bats utilize the cottonwood-willow and mesquite forests primarily for foraging along the LCR, unlike the western red bat which uses the cottonwood-willow and mesquite forests for both roosting and foraging.

The habitat information provided in the species account (below) in 2008 indicates that a wide range of habitat is used for roosting and foraging from Texas to the LCR.

"Western yellow bats are known to roost in the dead palm frond skirts of fan palms (Washingtonia spp.) (Cockrum 1961, Kurta and Lehr 1995, Williams 2001). In Guadalupe Canyon, New Mexico, broadleaf deciduous riparian trees, such as Fremont cottonwood (Populus fremontii), sycamore (Platanus wrightii), and hackberry (Celtis reticulate), were used as roosting sites (Mumford and Zimmerman 1963). In the Big Bend region of Texas, a western yellow bat was found using the giant dagger yucca (Yucca carnerosana) as a roosting site, in a similar manner as those using palm trees (Higginbotham et al. 2000). Palm trees may be preferred because dead fronds closely match their fur coloration, although they will utilize any tree that gives them enough cover to be hidden while roosting. In Arizona, they are found at elevations from 168 to 1,830 meters (AGFD 2003). Along the LCR, yellow bats have been recorded at a cottonwood revegetation site at Imperial NWR and a dense palm grove just north of Parker, Arizona (Brown 2006)."

The recent findings and previous work conducted by others documents the western yellow bats as predominantly roosting in fan palm trees, specifically in the dead palm fronds.

Monitoring Results for western yellow bat

The western yellow bat is not Federally listed as threatened or endangered. It is included in a draft list of Arizona Wildlife of Special Concern by the Arizona Game and Fish Department. According to the State of Nevada Comprehensive Wildlife Conservation Strategy, the western yellow bat is a Nevada Species of Conservation Priority. California Department of Fish and Game has proposed it as a species of special concern. The Western Bat Working Group lists the western yellow bat as a species of "Red or High" priority, the highest priority available.

The LCR MSCP initiated a study to identify the distribution and roost habitat requirements that began in 2011. Western yellow bats were captured with mist nets, affixed with a transmitter, and then tracked to their roosting locations. Nine western yellow bats were tracked during the 2011 season. Eleven roost sites were identified, and nine of the roost sites were in Mexican fan palms. Roosting locations were consistently below the live crown within the dead palm frond skirt (Diamond 2011). Roosting trees had a significantly higher percentage of dead crown vegetation than that of adjacent trees (Diamond 2011). In 2012, nineteen western yellow bats were captured and tracked. All roost sites were located in palm trees. Again, western yellow bats were found to not roost in cottonwood-willow habitat, and are using the cottonwood-willow and mesquite forests as foraging grounds. Additionally, western yellow bats appear to be selecting for a specific tree with a large dead palm frond skirt for roosting (Diamond in press.) Similarly, Williams' study in 2001 in the Upper Moapa Valley, Clark County Nevada found western

yellow bats roosting in palm trees, which accounted for a large portion of the time that the species was detected in riparian woodland habitat.

To better assess seasonal activity of bat species on the LCR and their relationship to environmental variables, 4 permanent detector stations were placed along the LCR (Vizcarra et al. 2010) in Reaches 3-6. The stations were placed in locations where there was a high probability of detecting the target species, such as cottonwood-willow (CW), mesquite (HM), saltcedar (SC), marsh (MA) and saltcedar/screwbean mesquite (SM) land cover and structure (I-IV) types. Bats were detected continuously using an Anabat detector from 2008 through 2012. Table 1 below lists bat detections by year, location and habitat type.

Table 1. Western yellow bat detections from acoustic monitoring in cottonwood-willow and honey mesquite

Location	Habitat Type	2008	2009	2010	2011	2012
Bill Williams River	CW I-IV	X	X	X	X	X
Picacho	CW II and HM	X	X	ND	X	X
Mittry	CW II and HM	X	X	X	X	X
CNWR Island Unit	CWI-IV and HM	X	X	X	X	X

X=present (acoustic and/or capture)
ND=Surveys conducted and WYBA Not Detected

Acoustic bat monitoring and mist netting (capture) of western yellow bats began in 2007 at LCR MSCP conservation areas. The table below shows the western yellow bats were either (or both) contacted using acoustics or through mist netting from 2007 through 2013 at each of the conservation areas. The table also provides the habitat type that each conservation area provides specifically where the species is utilizing the habitat for foraging.

Table 2. Western yellow bat presence in cottonwood-willow and honey mesquite

Location	Habitat Type	2007	2008	2009	2010	2011	2012	2013
Cibola Unit 1[1]	CW I-III and HM	ND	X	X	X	ND[2]	X	X
CVCA (Phase 1, 2 and 3)[1]	CW I-III and HM	X	X	X	X	X	X	X
PVER[1]	CW II-IV and HM	X	X	X	X	X	X	X
Beal Lake Conservation Area[1]	CW I and HM	X	X	X	X	X	X	X

NS=Surveys not conducted
X=present (acoustic and/or capture)
ND=Surveys conducted and WYBA Not Detected
[1]AGFD and Reclamation Reports; and unpublished data
[2]The data was inconclusive due to high insect noise

-The current WYBA3 conservation measure ~~is~~ does not fully reflect the western yellow bat's use of cottonwood-willow~~accurate~~ habitats given that they ~~western yellow bats~~ roost primarily in the skirts of palm trees instead of cottonwood-willow as currently defined in the conservation measure. Includ~~Add~~ing foraging to the conservation measure matches more closely to the species roosting and foraging ecology.

Literature Reviewed

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